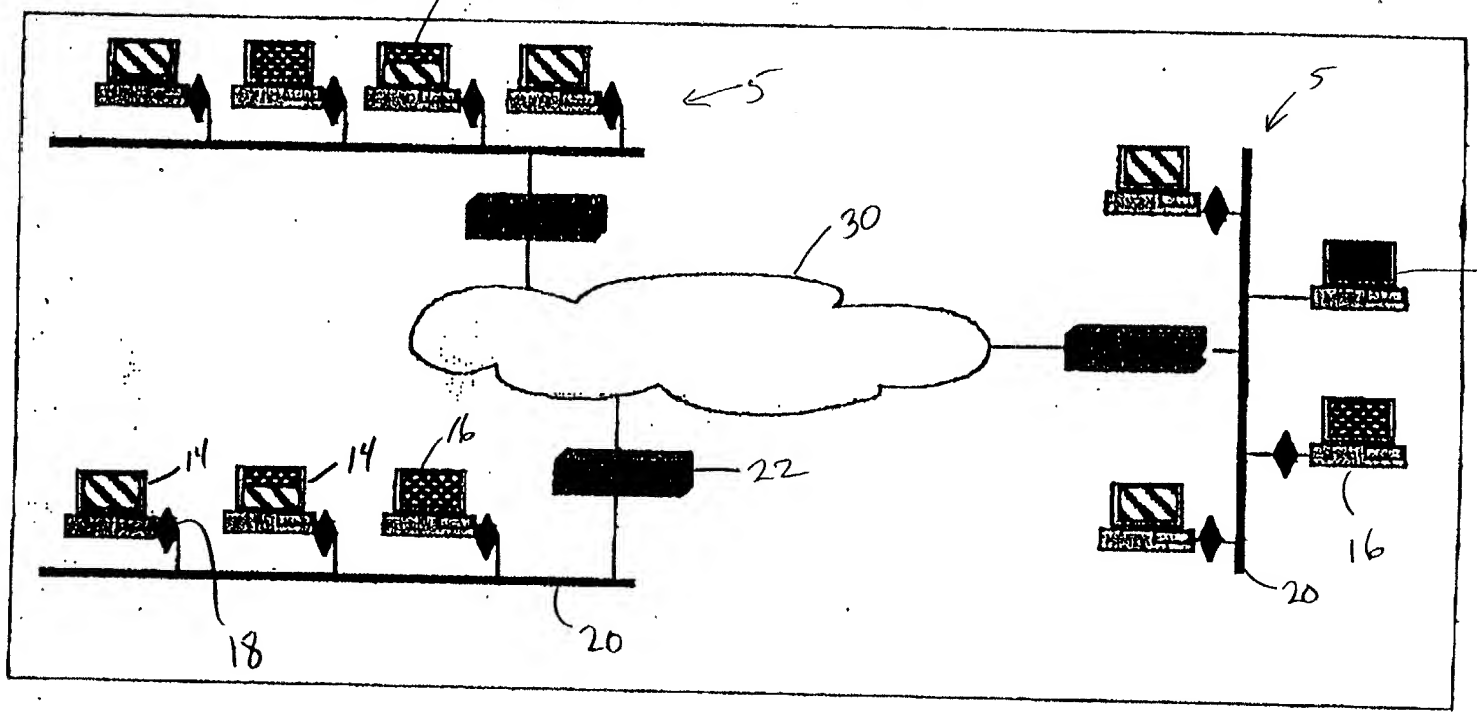


10

Fig 1

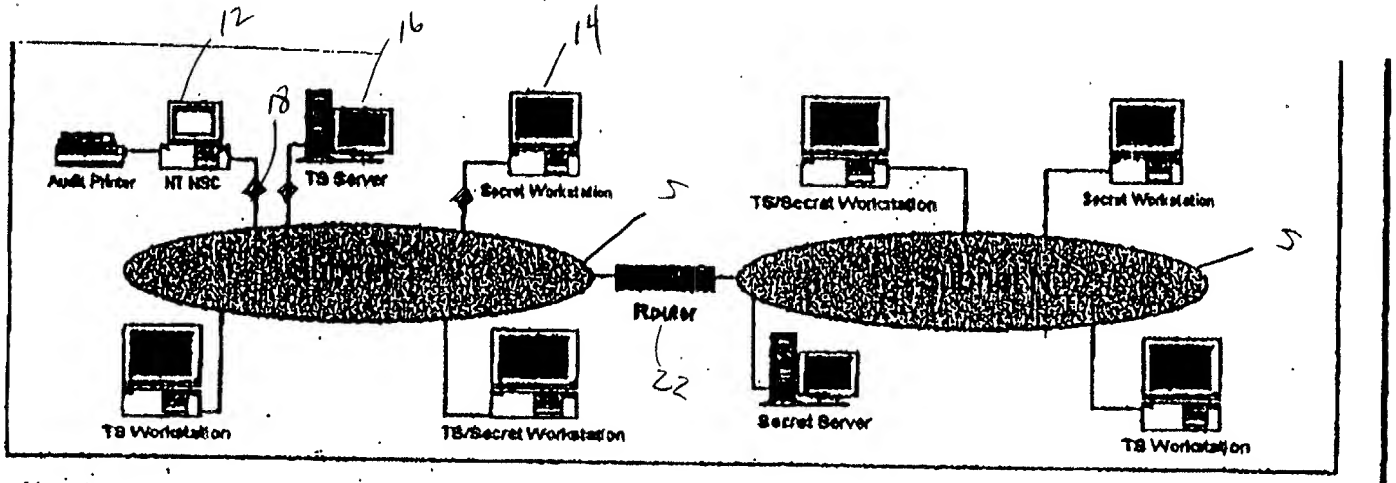

12
16
14
18
Audit Printer
NT NSC
TS Server
Secret Workstation
TS/Secret Workstation
Secret Workstation
5
5
Router
22
TS Workstation
TS/Secret Workstation
Secret Server
TS Workstation

Figure 2

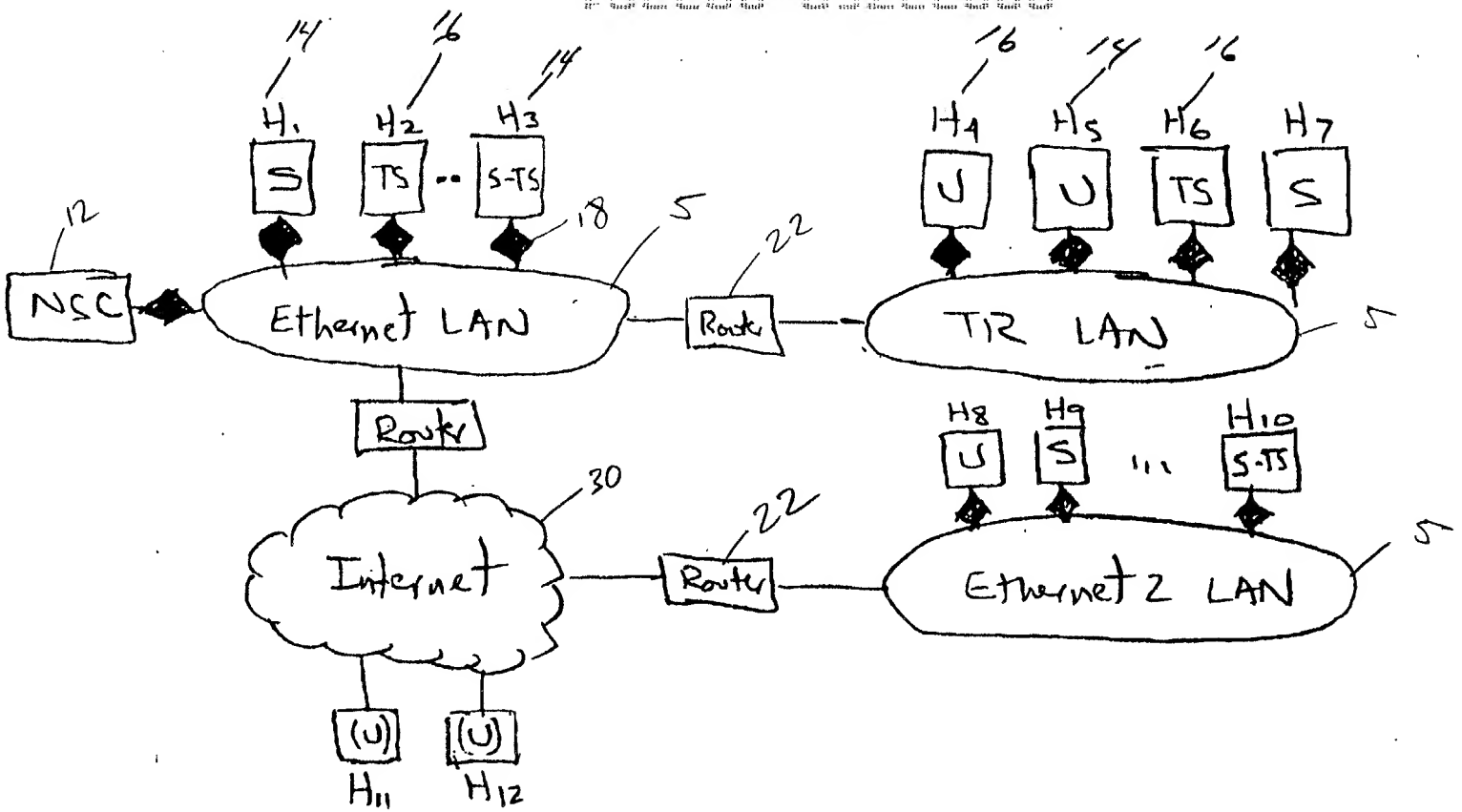

14
16
14
16
16
14
16
H1
H2
H3
H4
H5
H6
H7
S
TS
S-TS
U
U
TS
S
12
18
5
22
NSC
Ethernet LAN
Router
TIR LAN
5
Router
H8
H9
H10
U
S
S-TS
30
22
5
Internet
Router
Ethernet 2 LAN
(U)
(U)
H11
H12

Figure 3

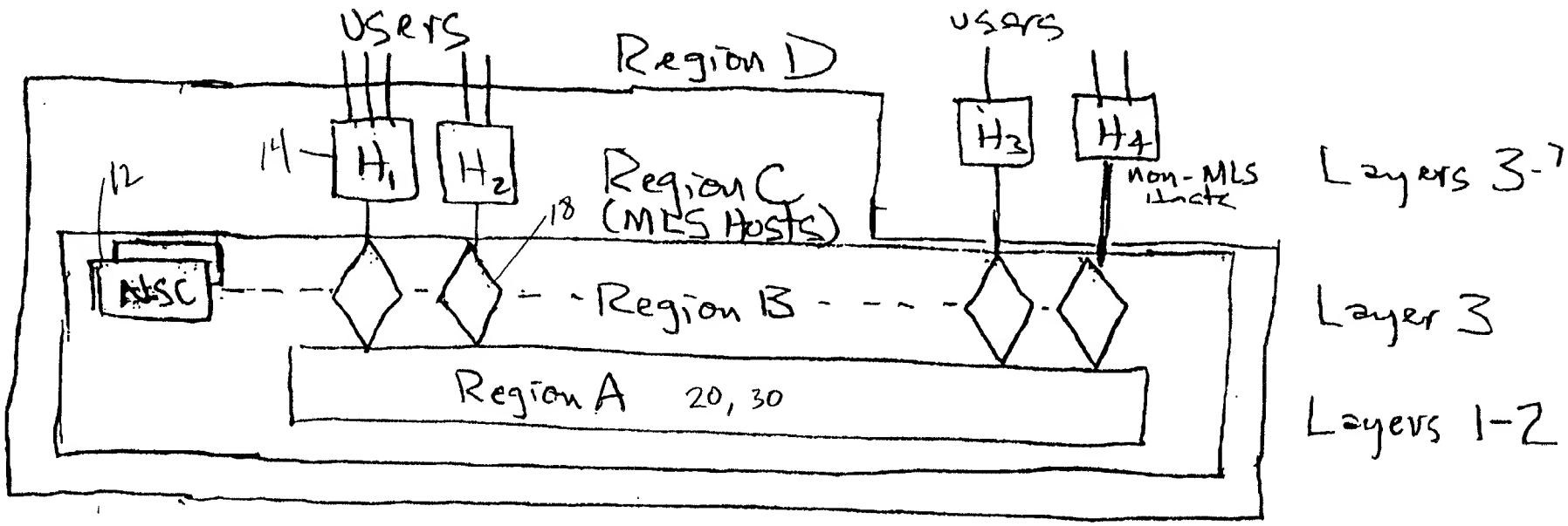

Users
Region D
Users
14
H_1
H_2
H_3
H_4
non-MLS
Host
12
Region C
(MLS Hosts)
18
NLSC
Region B
Region A 20, 30
Layers 3-7
Layer 3
Layers 1-2

Figure 4

PCT/US2003/025250

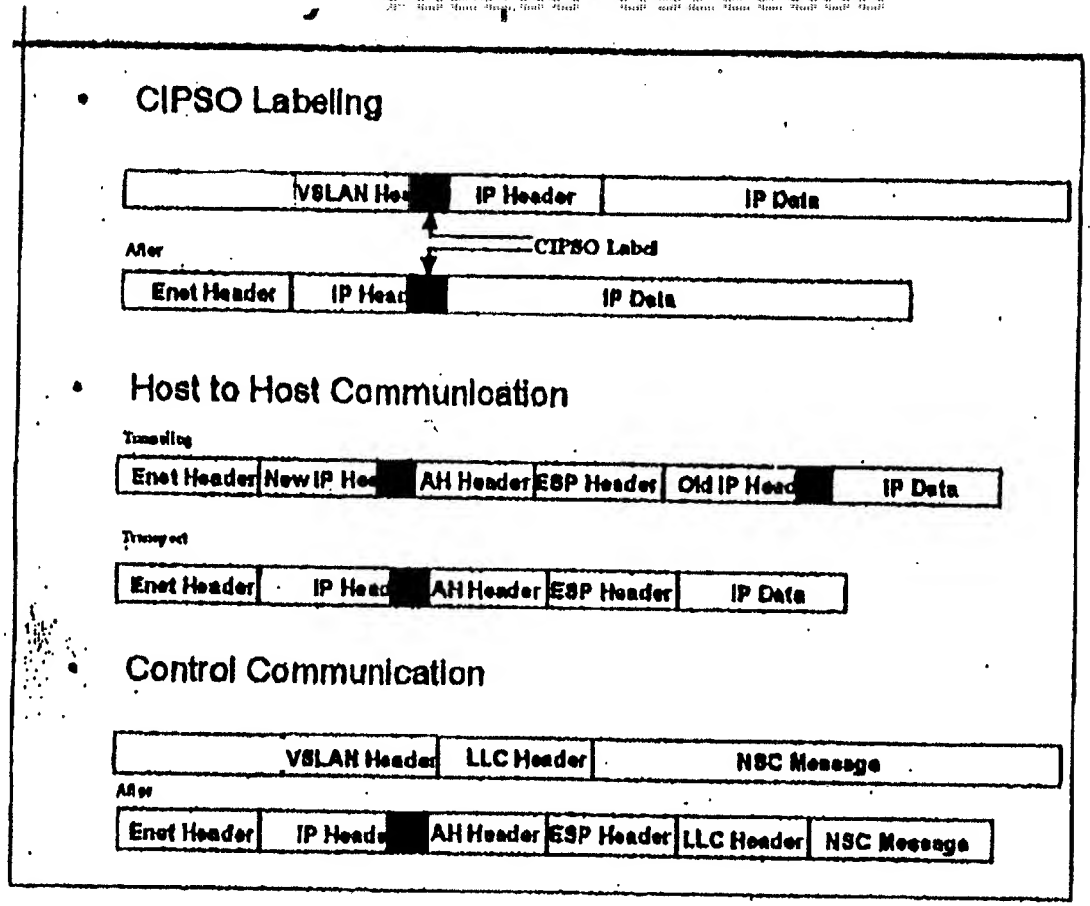


Figure 5

256 Levels

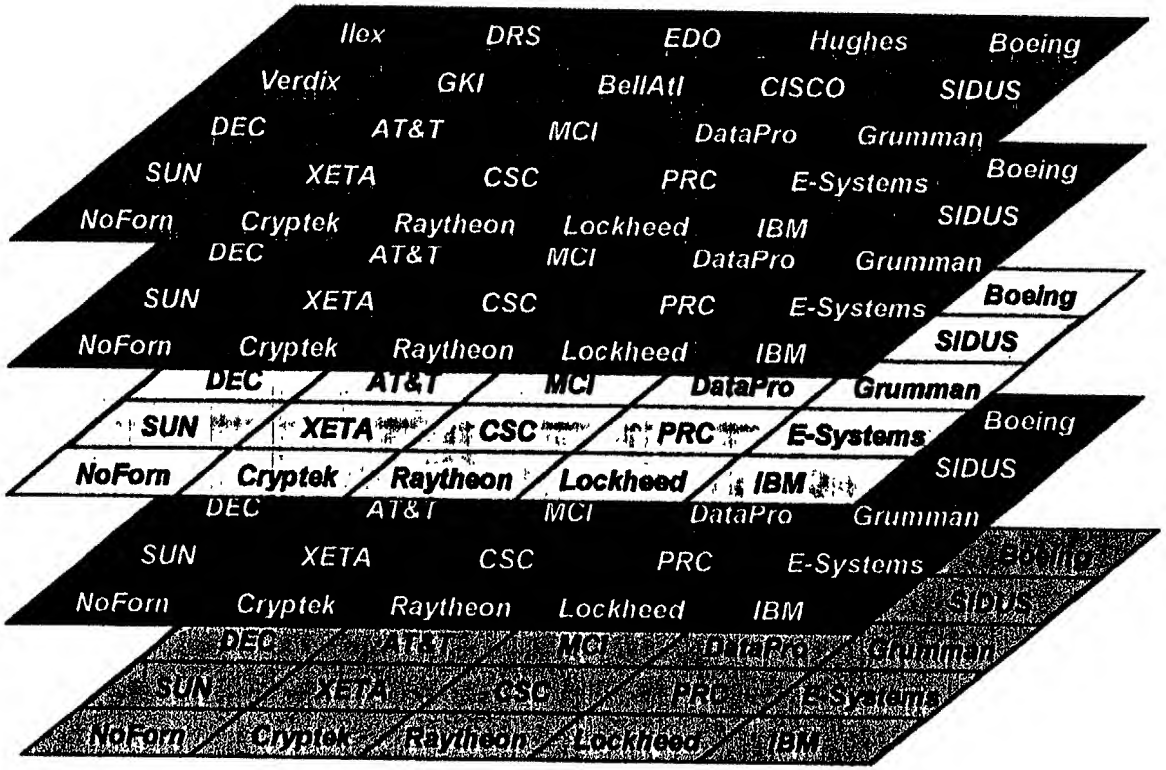
Top Secret

Secret

Proprietary

SBU

Unclassified



65,535 Categories

Figure 6

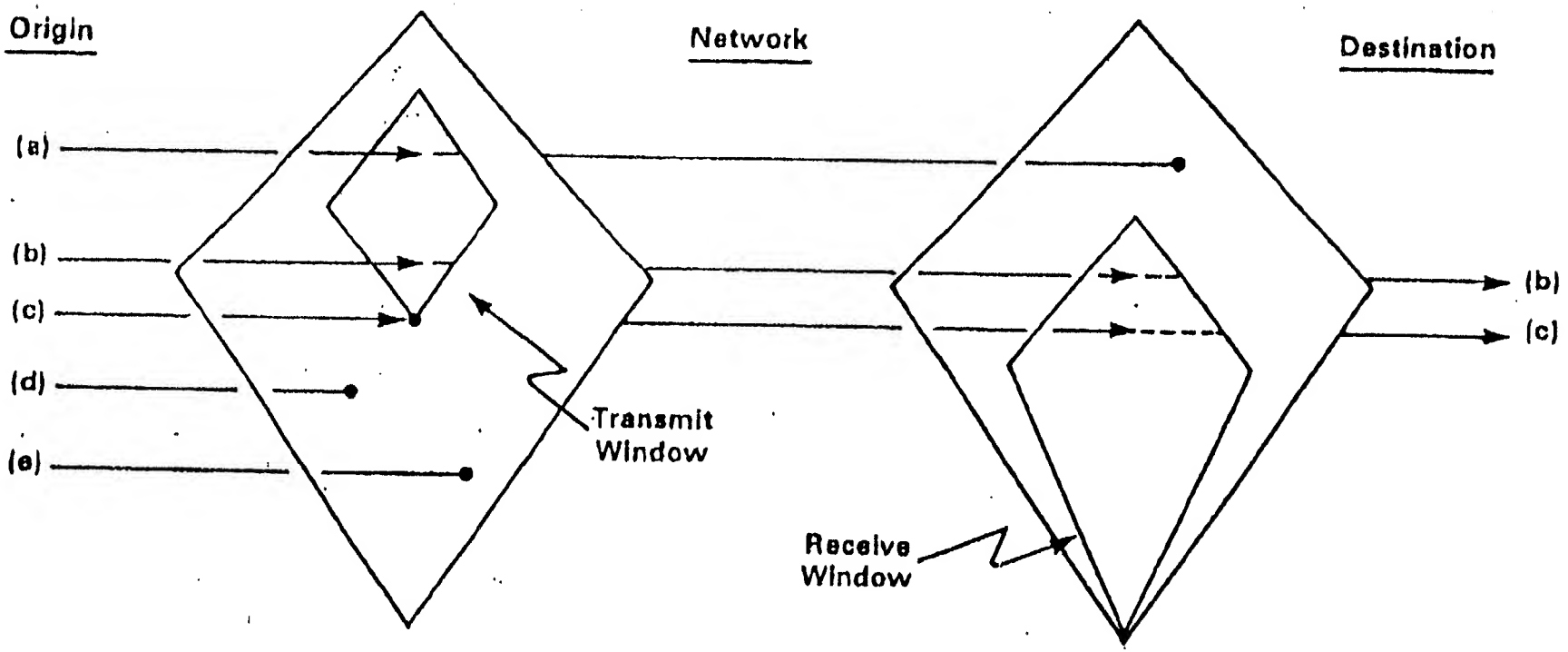

Origin
Network
Destination
(a)
(b)
(c)
(d)
(e)
Transmit Window
Receive Window
(b)
(c)

Figure 7

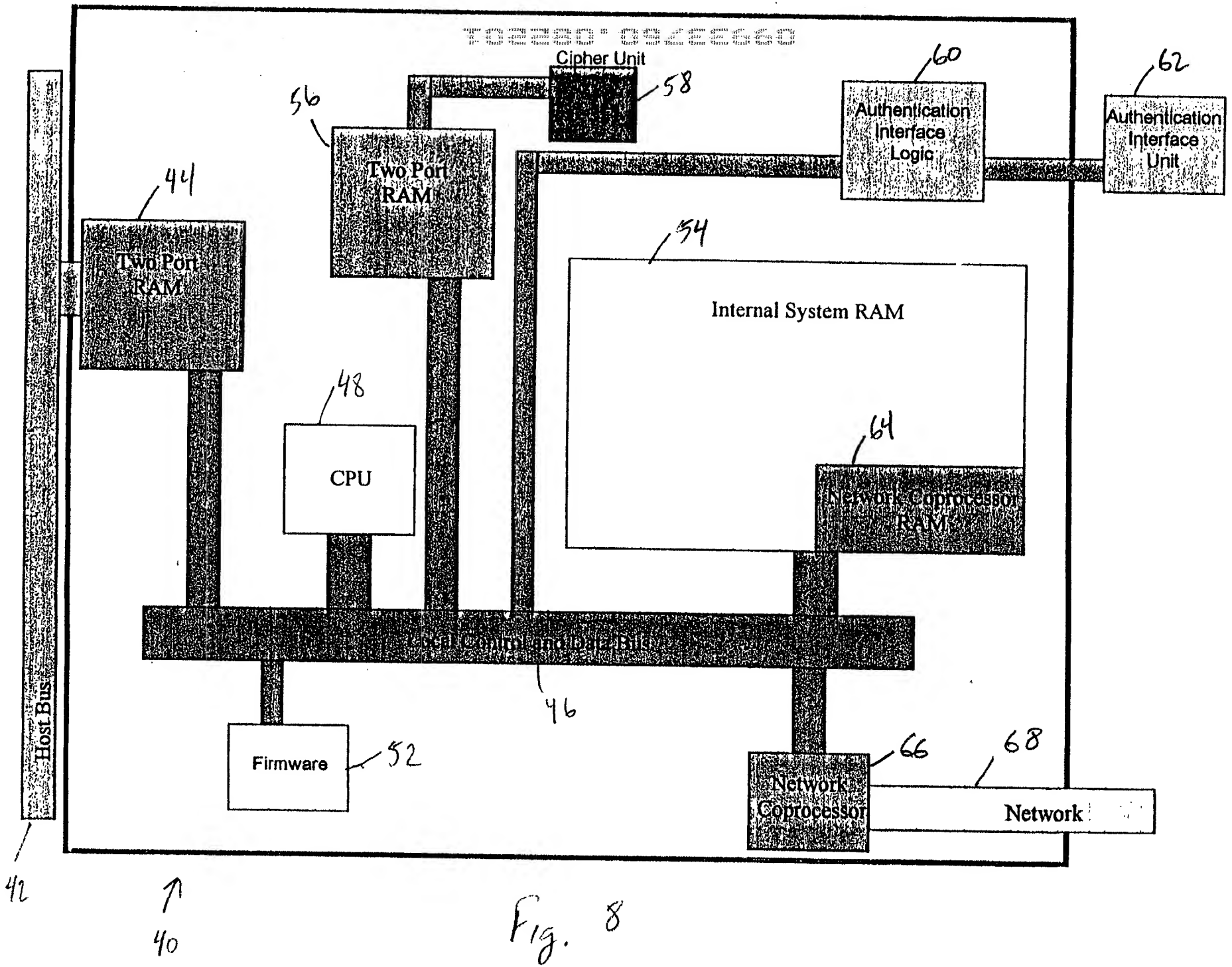

Cipher Unit
58
60
62
56
Two Port RAM
Authentication Interface Logic
Authentication Interface Unit
44
Two Port RAM
54
Internal System RAM
48
CPU
64
Network Coprocessor RAM
Local Control and Data Bus
46
Host Bus
Firmware
52
66
68
Network Coprocessor
Network
42
40

Fig. 8

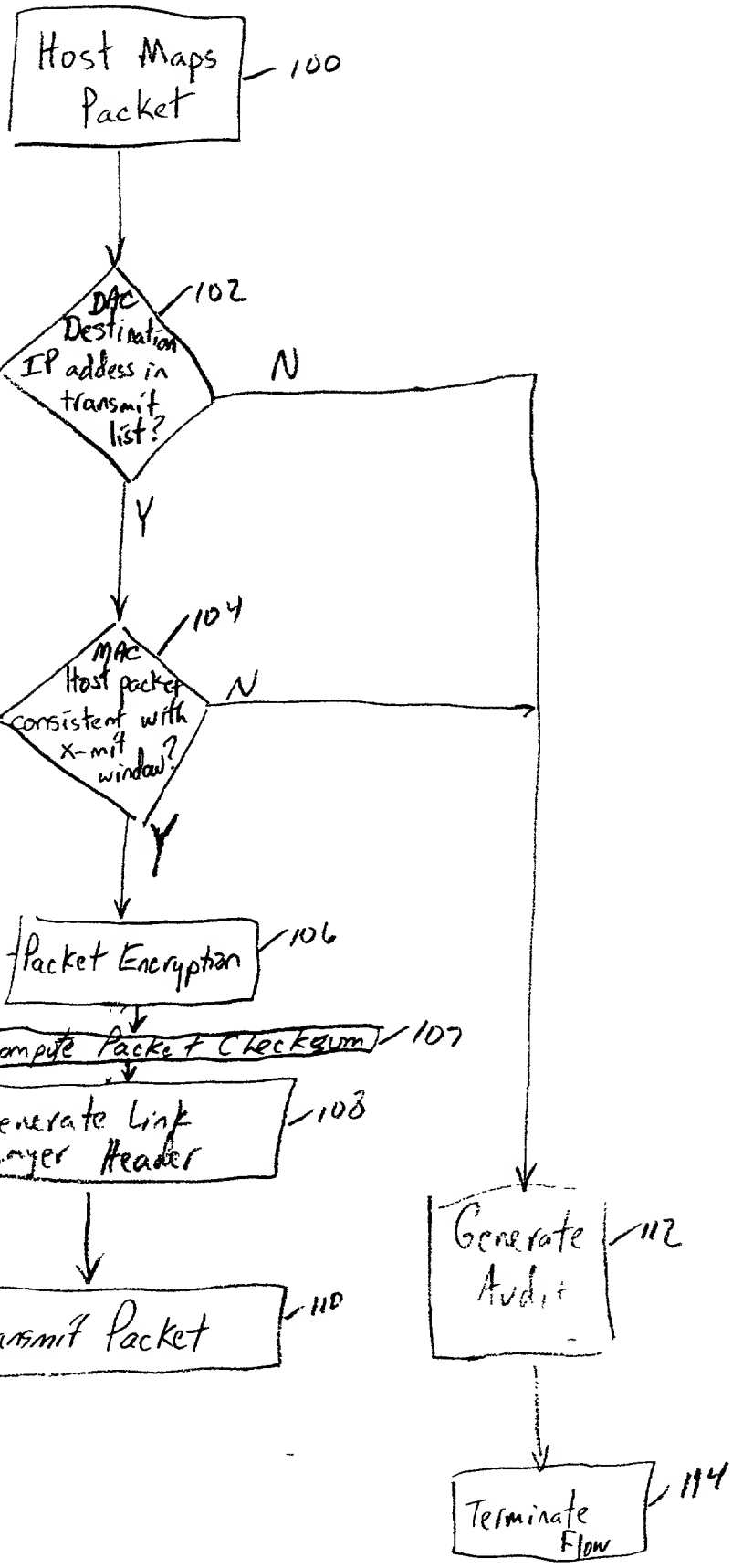

Host Maps Packet
100
DAC Destination IP address in transmit list?
102
N
Y
MAC Host packet consistent with x-mit window?
104
N
Y
Packet Encryption
106
Compute Packet Checksum
107
Generate Link Layer Header
108
Transmit Packet
110
Generate Audit
112
Terminate Flow
114

Fig 9

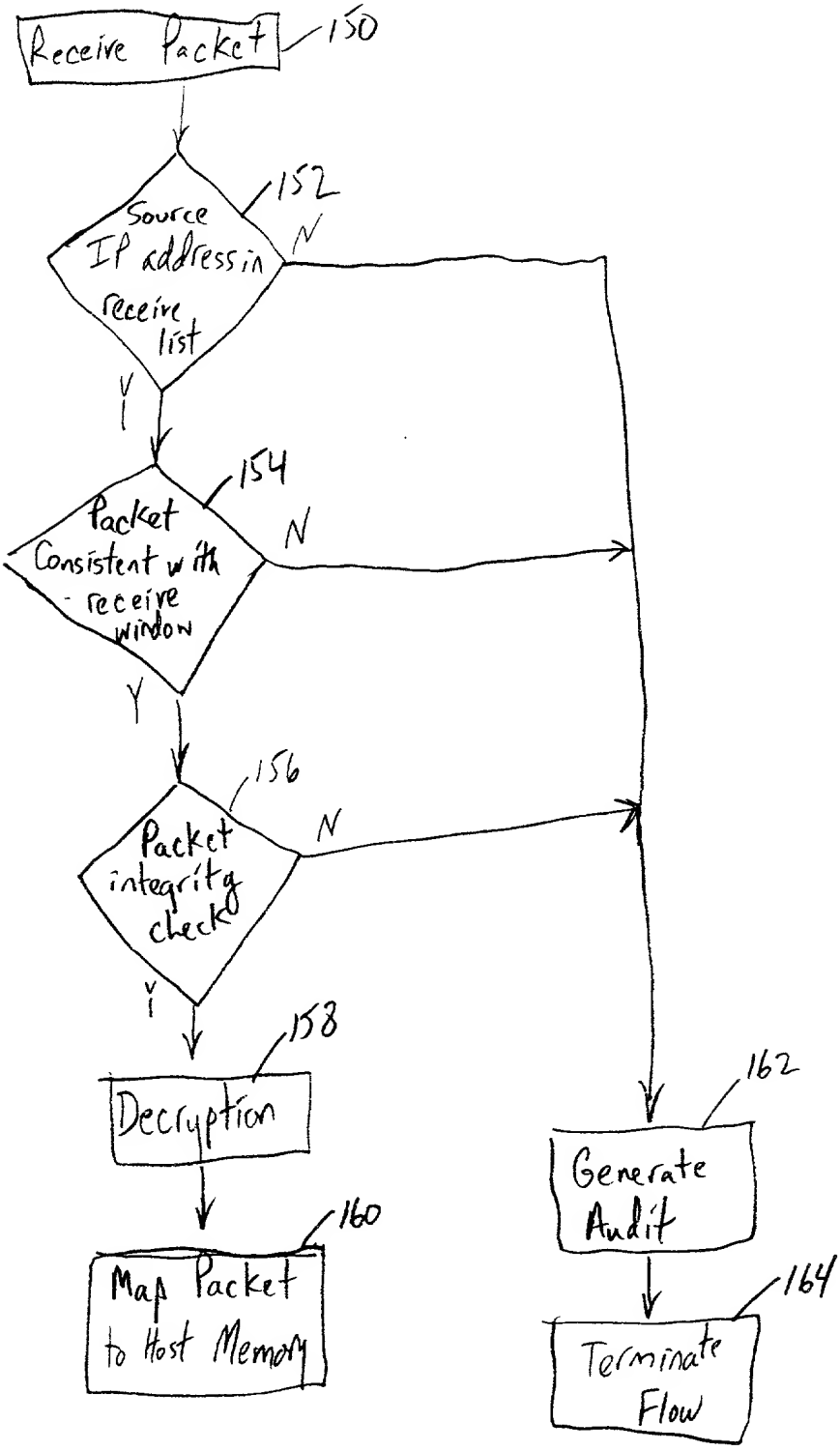
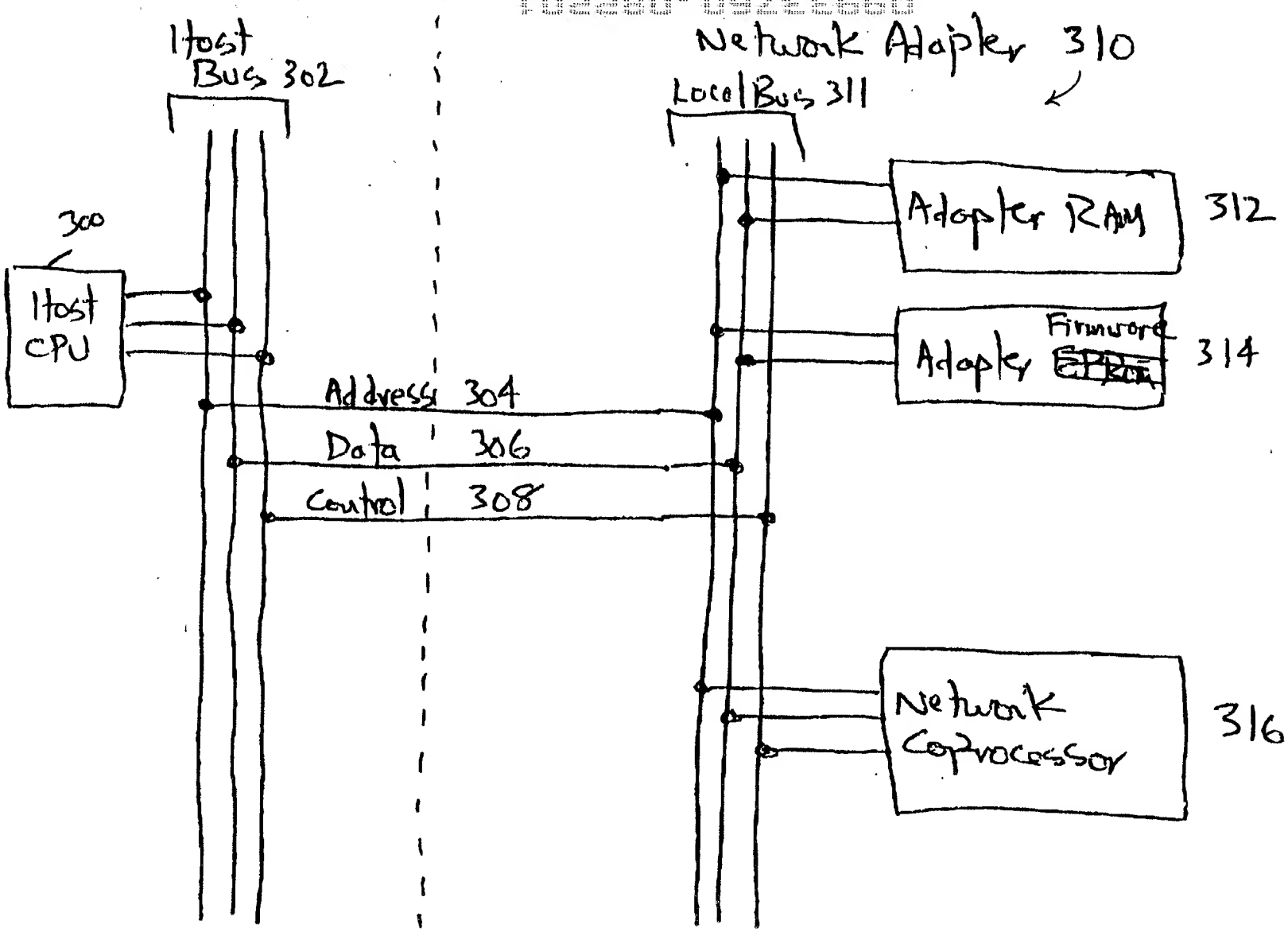

Receive Packet
150
Source IP address in receive list
152
N
Y
Packet Consistent with receive window
154
N
Y
Packet integrity check
156
N
Y
Decryption
158
Map Packet to Host Memory
160
Generate Audit
162
Terminate Flow
164

Fig. 10



Prior Art

Figure 11

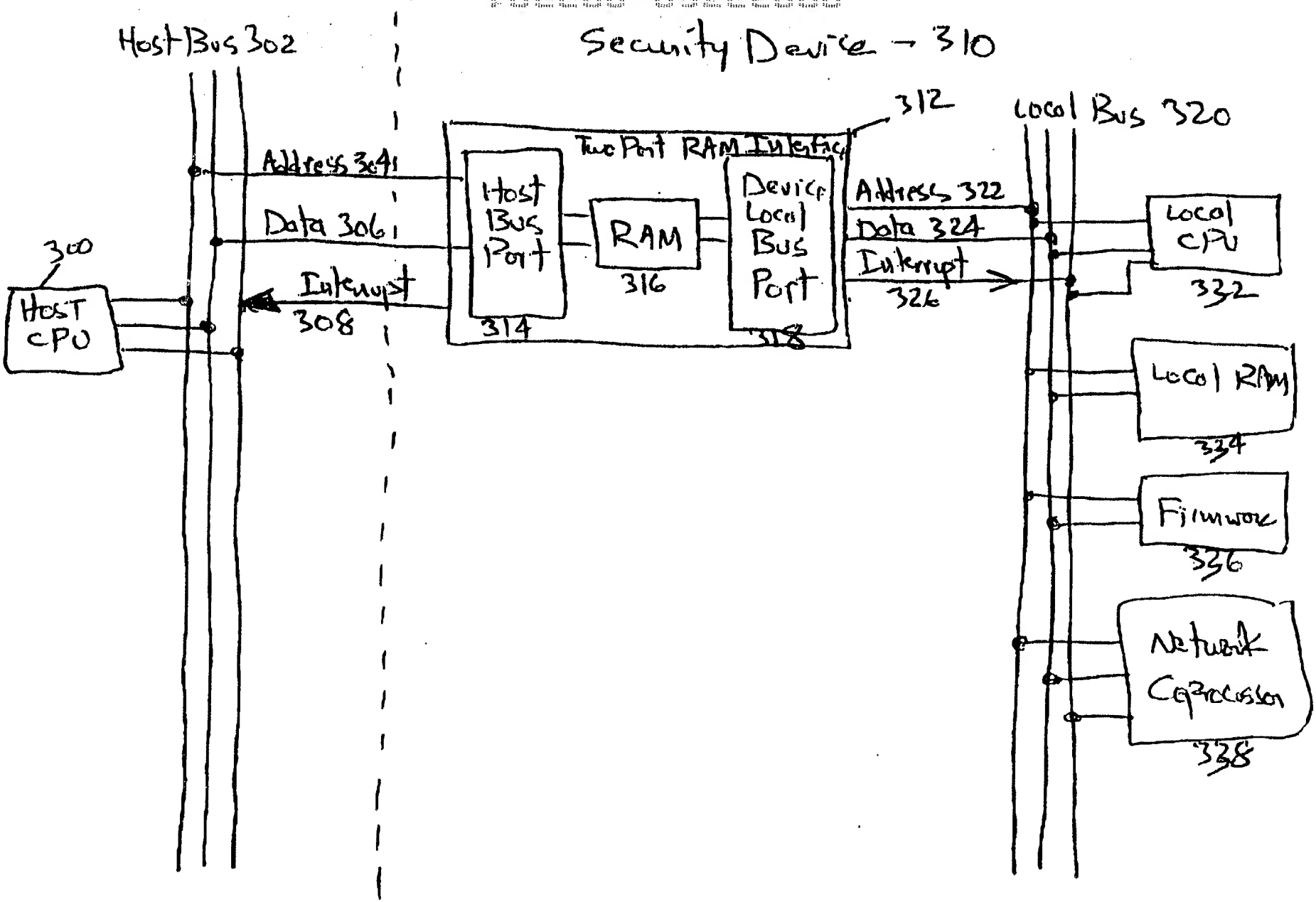

Host Bus 302
Security Device - 310
312
Local Bus 320
Two Port RAM Interface
Address 304
Data 306
Interrupt 308
300
Host CPU
Host Bus Port
314
RAM
316
Device Local Bus Port
318
Address 322
Data 324
Interrupt 326
Local CPU
332
Local RAM
334
Firmware
336
Network Coprocessor
338

Fig 12-

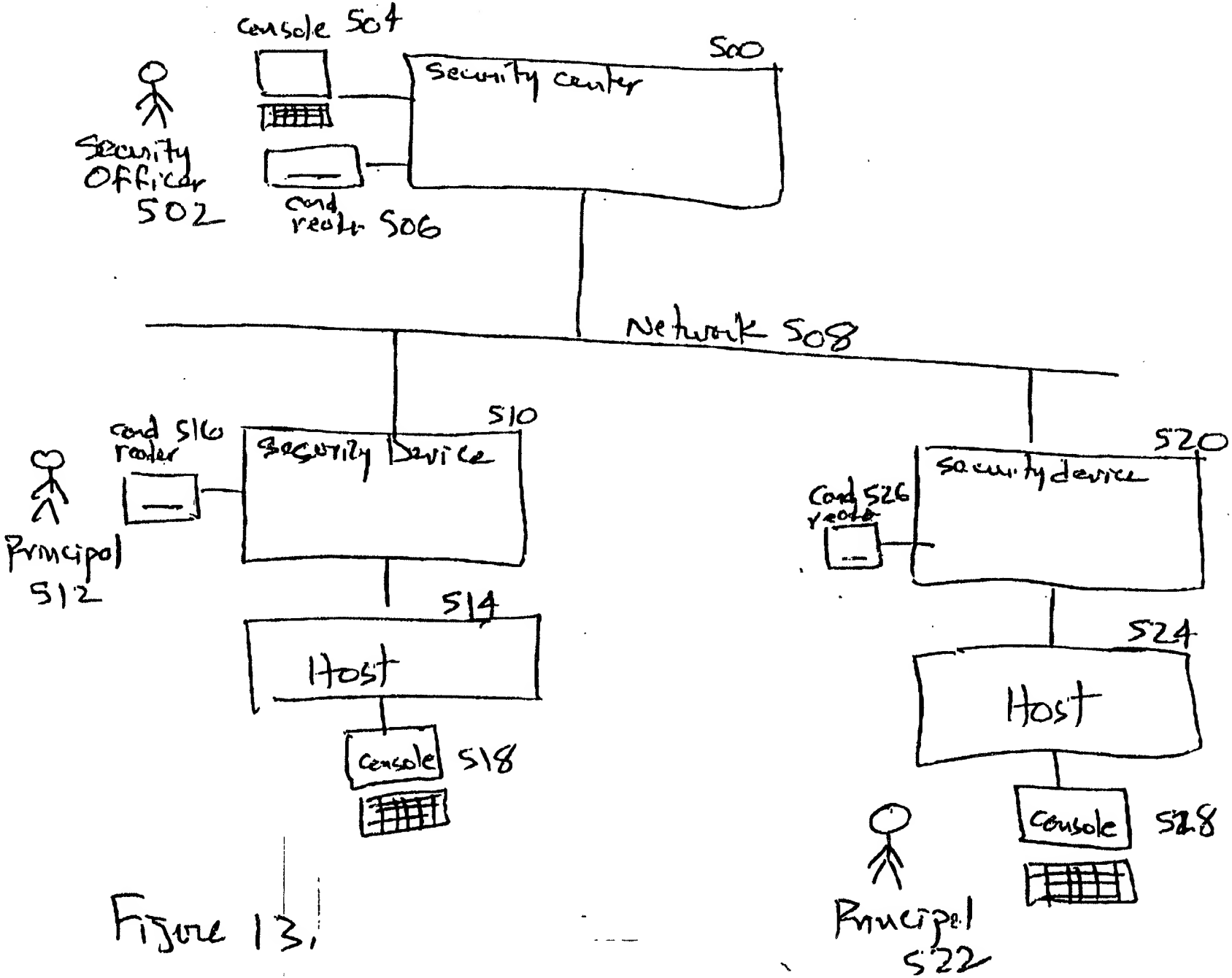

Console 504
500
Security center
Security Officer 502
cmd reader 506
Network 508
cmd 516 reader
510
Security Device
Principal 512
514
Host
Console 518
cmd 526 reader
520
security device
524
Host
Console 528
Principal 522

Figure 13.

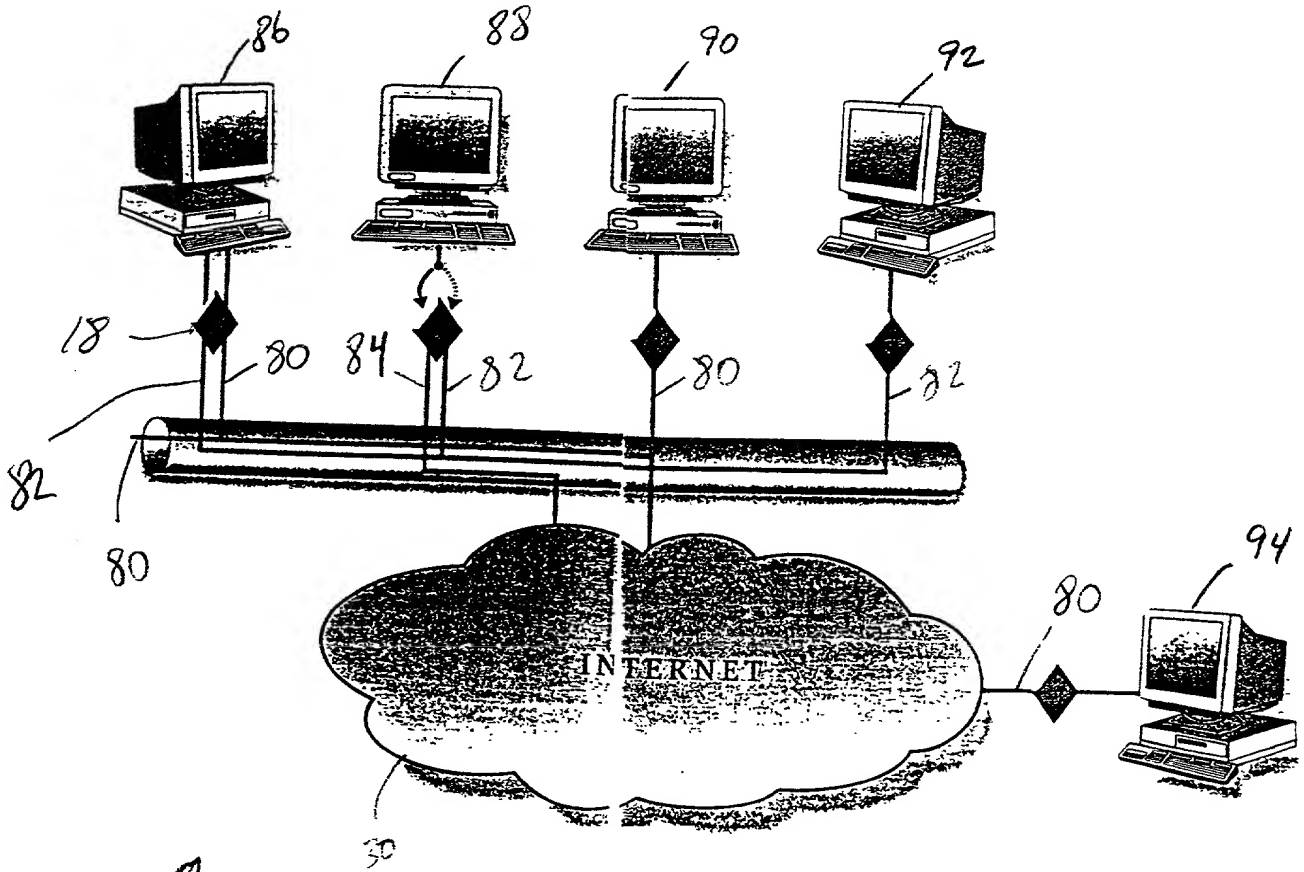


Fig. 14